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ABSTRACT

This paper reviews previous research into ability grouping and describes a study of the relationship of heterogeneous and homogeneous grouping plans on children's concepts of their interpersonal relationships with other students and their academic success. Most studies on the emotional impact of ability grouping indicated that being placed in the low group carries a certain social stigma, although findings in one study suggested that students of low ability levels have higher feelings of self-worth in homogeneous settings. Studies concerned with self-image and social relationships found that children were aware of grouping, even in heterogeneous classes, and that peer acceptance was greater in heterogeneous classes. Studies of attitude and self-concept of children in homogeneous grouping programs showed that these programs seemed to be most beneficial for children in the high status groups. In the study reported here 713 sixth grade students (356 homogeneously grouped, 357 heterogeneously grouped) from six elementary schools were administered a questionnaire devised to test the students' concepts of their interpersonal acceptance and academic success. Results indicated that homogeneously grouped children indicated more favorable adjustment to other children and schoolwork than heterogeneously grouped children, though there appeared to be as much, if not more, difference from class to class in each organizational plan than between the two large organizational plans. Some sex differences were found. Results were sufficiently varied to suggest that the entire grouping question should be studied in depth. (SB)

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# COMPARATIVE STUDY OF CERTAIN SOCIAL AND SCHOOL ADJUSTMENTS OF CHILDREN IN TWO GROUPING PLANS

PAPER PRESENTED TO AMERICAN PSYCHOLOGICAL ASSOCIATION MEETING
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An analysis of the informed opinion and research literature (1920-1974) has been made that shows the state of knowledge with respect to possible relationships among grouping or tracking plans and children's views of themselves, their abilities to achieve in school situations, and their actual achievement. In brief, much opinion abounds, but a paucity of research studies exists in the general area. From 1929 through 1974, we found 16 research studies reported in journals that dealt primarily with questions dealing with achievement (see Bibliography). In essence, the findings in the studies were inconclusive. Approximately half of them showed certain children to make gains when grouped by ability as compared to those who were not. While the other half of the studies showed little or no difference in achievement for ability grouped pupils who were compared to heterogeneously grouped ones. Since 1962, only five studies that were concerned with achievement results, as they may be related to grouping, have appeared in Dissertation Abstracts. Interestingly, of the five studies, the same results prevailed, without any conclusive patterns being established insofar as achievement of pupils is concerned.

When analyzing the variability studies conducted from 1921 to the present (see Bibliography), one can conclude that it is not possible to arrange pupils who are alike in more than one measured "trait" at any given period of time. The question remains as to how long the persons would stabilize on whatever variable was being considered. Perhaps the first fallacy is assuming that any kind of true homogeneous grouping could ever be effected.

The actual research in the area of children's feelings and adjustment as they are grouped according to ability is even harder to find.

A. Luchins and Edith Luchins (1948, pp. 3-9) conducted a study in which they attempted to determine attitudes of children in homogeneously grouped situations. They selected 190 children enrolled in fourth, fifth, and sixth grades from one school. Through a personal interview, they asked the subjects five questions that dealt with their school situation. They found that many pupils in "low" sections appeared to feel "inferior" and "ostracized." Also found was a strong social pressure to be in a "top" section to avoid the stigma attached to a "low" section. The Luchins reported that the "brighter" children appeared snobbish and smug in their "top" section status positions.

In a limited study with 102 fifth grade pupils in one school, Maxine Mann (1960, pp. 357-60) obtained self reports. She used five questions, three as blinds and two to obtain data. Based on her data, she believed that serious consideration should be given to the possible emotional impact on the child, particularly to determine whether ability grouping is good in the way that children look at themselves.

In a critical analysis of homogeneous grouping, Alice Keliher (1931, pp. 101-130) reported data collected from 505 subjects. She was primarily interested in whether they were aware of the basis for their having been grouped homogeneously. She found that the children did "generally seem to know their own grouping" and "the responses indicate the presence of many self-pictures." Also, she reported a large number of responses that denoted views of "inferiority" or "superiority" to other children.

D.B. Severson, Jr. (1956, pp. 1-179) investigated the personal-social development of junior high students who were in ability grouping situations.

He selected at random two control schools and two experimental schools. After administering the Mental Health Analysis Inventory and analyzing the results, he found that ability grouped pupils had scores that were between one and two deciles higher than the heterogeneously grouped ones.

A study designed to evaluate the effects of a fast-learner program on children's social relationships was conducted by Mary Goldworth (1959, pp. 59-62). From subjects in fourth through eighth grades she found that "the proportion showing an increase in the degree to which they were accepted as friends by their classmates was significantly greater in the heterogeneous classes."

In examining the sociometric patterns shown by sixth-grade pupils in the two grouping plans, F. R. Deitrich (1964, pp. 507-13) found that ability grouping neither added nor detracted to the social adjustment of pupils in terms of self-acceptance or academic self-concept.

Anne Lasswell (1967, pp. 810-812) studied the influence of reading group placement on primary pupils with respect to enjoyment of reading and the perception of self as a reader. She did not find any clear evidence to support either proponents or opponents of ability grouping. The only clear trend from her data was that pupils did have accurate judgments as to where they were placed.

Schrank (1970, pp. 358-60) was interested in the effect of labeling children in ability groups. His evidence showed that the teacher is the dominant factor in the labeling effect. He stated that "it is likely that the effect results from an interrelated set of teacher and pupil role perceptions and their reactions to their perceptions."

In studying organizational methods of reading instruction, L. G. Johnson (1964, p. 6433) found essentially the same attitudes toward reading

by pupils who had been placed in one of four plans:

1) Individualized reading

2) Heterogeneous grouping with basal readers

3) Homogeneous grouping with basal readers in self-contained classroom

4) Homogeneous grouping with basal readers in Joplin plan

When he compared pupil attitudes under conditions of ability and heterogeneous grouping, Marion Adkinson (1966) found that ability grouping appeared to be detrimental to pupils in low status groups. For pupils in high status groups, he found that ability grouping had a positive effect. He said that his evidence supports the contention that decisions to separate children through formal grouping patterns should include the question of values as well as the administrative organization.

R. Evnatt (1963) surveyed pupils' attitudes toward inter-grade ability grouping for reading instruction. He found sufficient negative reactions from pupils to advise that inter-grade ability grouping be discontinued.

A different finding was reported by Martin Olavarri (1966). He determined some relationships of ability grouping to student self-concept. In general, he found that students of low ability levels have higher feelings of self-worth in homogeneous settings. He speculates that teachers spend more time enhancing the student's feelings of self-worth and that they are placed in greater opportunities for success in their school work.

Of the studies reviewed, most of the children in homogeneously grouped situations generally fare better when they are grouped in high sections, although, some studies have suggested that snobbishness may prevail. Conversely, most studies show children who are placed in low sections to suffer negative feelings and be surrounded with a certain stigma. There were two studies with notable exceptions to the above. Since the evidence

currently available is not conclusive, has certain contradictory elements, does not provide clear direction, and is not plentiful, the following study was designed.

The study is concerned in general with the relationship of heterogeneous and homogeneous grouping plans on pupils' beliefs* as to (A) their relationships to other pupils and to the classroom group, and (B) their school success and achievement. (Hereafter referred to Areas A and/or B).

There were 713 sixth grade pupils chosen from six elementary schools as subjects for the study. Of the 713, 356 subjects were homogeneously grouped and 357 were heterogeneously grouped. The same instructions and examiner were used with all subjects in the study as they responded to the opinionnaire. Scores were derived for each subject.

Anova was applied to total scores and also to Areas A and B scores. The following were examined:

1) Differences, if any, between subjects in schools with the two organizational plans.

2) Differences, if any, between classes in each of the two plans.

3) Differences, if any, between boys and girls in the two plans.

The opinionnaire responses of the homogeneously grouped children (as a total group) seemed to indicate more favorable adjustment to other children

*An instrument was not located that would yield the kinds of results desired; therefore, one was devised. Specific criteria were formulated and judged by 14 post-masters degree psychologists. Then 64 statements were prepared to fit the criteria and they to were subjected to judgment. There was 100 per cent agreement on 18 groups of three items, 92.5 per cent agreement on two groups of three items, and 85.7 per cent agreement on one group of three items. The two general areas covered in the Opinionnaire were A) the child's views of his relationships with his peers and classroom group and B) his appraisal of his school success and achievement. A group of 100 sixth grade pupils was chosen for the test-retest which resulted in an obtained $\bar{r}$ of +.77 ($p. < .001$) in order to establish the coefficient of stability prior to the use of the opinionnaire in this study.

and schoolwork than was shown for the heterogeneously grouped children (as a total group). Analysis of variance showed statistically significant differences in favor of the homogeneously grouped children on: (1) total scores (See Table 1), (2) Area A (See Table 2), and (3) Area B (See Table 3).

There appeared to be as much, if not more, difference from class to class in each organizational plan than was found between the two large organizational plans. Analysis of variance yielded differences which were highly significant from class to class in each of the two organizational plans for: (1) total scores (See Table 4), (2) Area A (See Table 5), and (3) Area B (See Table 6). Means for classes in each plan arranged in rank order showed a wide difference from class to class in each plan (See Table 7).

The "low" or"middle" ability classes in homogeneously grouped schools seemed to be less well adjusted than their more highly sectioned peers. The "highest" and "high" ability homogeneously grouped classes tended to have higher scores, which contributed to the significantly higher mean for homogeneously grouped children as compared with heterogeneously grouped children.

Rank order of means showed a tendency for more representation of "highest" and "high" ability classes in the top half of means from homogeneously grouped schools for (1) total scores (See Table 7), (2) Area A, and (3) Area B (See Table 7-A).

TABLE 1

ANALYSIS OF VARIANCE FOR TOTAL SCORES--
HOMOGENEOUSLY VERSUS HETEROGENEOUSLY
GROUPED CHILDREN

| Source of variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Between plans | 329.80 | 1 | 329.80 | 10.61** |
| Within Plans | 22,080.91 | 711 | 31.06 | |

Means:

| | |
|---|---|
| Homogeneously grouped children | 51.77 |
| Heterogeneously grouped children | 50.44 |

P.01 = 6.85 P.001 = 11.38

Highest possible score = 63
Lowest possible score = 21

**F significant beyond .01 level.

TABLE 2

ANALYSIS OF VARIANCE FOR AREA A SCORES--
HOMOGENEOUSLY VERSUS HETEROGENEOUSLY
GROUPED CHILDREN

| Source of Variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Between plans | 161.9 | 1 | 161.90 | 11.27** |
| Within plans | 10,207.2 | 711 | 14.36 | |

Means:

| | |
|---|---|
| Homogeneously grouped children | 27.64 |
| Heterogeneously grouped children | 26.69 |

P.01 = 6.85 P.001 = 11.38

Highest possible score = 33
Lowest possible score = 11

**F significant beyond .01 level.

TABLE 3

ANALYSIS OF VARIANCE FOR AREA B SCORES--
HOMOGENEOUSLY VERSUS HETEROGENEOUSLY
GROUPED CHILDREN

| Source of Variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Between plans | 64.9 | 1 | 64.90 | 7.44** |
| Within plans | 6,200.9 | 711 | 8.72 | |

Means:

Homogeneously grouped children 24.31
Heterogeneously grouped children 23.53

P.01 = 6.85 P.001 = 11.38

Highest possible score = 30
Lowest possible score = 10

**F significant beyond the .01 level.

TABLE 4

ANALYSIS OF VARIANCE ON TOTAL SCORES
FOR CLASSES WITHIN ORGANIZATIONAL
PLANS

| Source of Variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Among classes in a plan | 2,398.70 | 21 | 114.22 | 4.00*** |
| Within classes in a plan | 19,682.22 | 690 | 28.52 | |

P.01 = 2.34 P.001 = 3.02

***Significant beyond the .001 level.

Note: See Table 7 for class means.

TABLE 5

ANALYSIS OF VARIANCE ON AREA A SCORES FOR CLASSES WITHIN ORGANIZATIONAL PLANS

| Source of Variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Among classes in a plan | 1,276.21 | 21 | 60.77 | 4.70*** |
| Within classes in a plan | 8,931.0 | 690 | 12.94 | |

P.01 = 2.34 P.001 = 3.02

***Significant beyond the .001 level.

TABLE 6

ANALYSIS OF VARIANCE ON AREA B SCORES FOR CLASSES WITHIN ORGANIZATIONAL PLANS

| Source of Variation | Sums of Squares | Degrees of Freedom | Variance | F |
|---|---|---|---|---|
| Among classes in a plan | 429.9 | 21 | 20.47 | 2.44** |
| Within classes in a plan | 5,771.0 | 690 | 8.36 | |
| P.01 = 2.34 | P.001 = 3.02 | | | |

**Significant beyond the .01 level.

TABLE 7

RANK ORDER OF TOTAL SCORE MEANS
FOR CLASSES IN TWO
ORGANIZATIONAL
PLANS

| Means for Homogeneously Grouped Classes | Rank Order | Means for Heterogeneously Grouped Classes |
|---|---|---|
| 1 C - 53.97. . . . . | 1 | |
| | 2 | . . . . . .53.87 - 2 Z |
| 1 B - 53.64. . . . . | 3 | |
| 2 A - 53.56. . . . . | 4 | |
| | 5 | . . . . . .53.09 - 2 Y |
| 2 C - 52.00. . . . . | 6 | |
| | 7 | . . . . . .51.47 - 3 X |
| 1 A - 51.39. . . . . | 8.5 | |
| 3 B - 51.39. . . . . | 8.5 | |
| | 10 | . . . . . .51.35 - 1 Z |
| | 11 | . . . . . .51.26 - 2 X |
| 4 A - 51.21. . . . . | 12 | |
| | 13 | . . . . . .51.19 - 4 Y |
| 3 A - 51.13. . . . . | 14 | |
| 3 C - 51.00. . . . . | 15 | |
| 4 C - 50.67. . . . | 16 | |
| | 17 | . . . . . .50.54 - 3 Y |
| 5 A - 50.11. . . . . | 18 | |
| 2 B - 50.06. . . . . | 19 | |
| | 20 | . . . . . .49.12 - 4 X |
| | 21 | . . . . . .48.90 - 1 Y |
| | 22 | . . . . . .47.76 - 1 X |
| | 23 | . . . . . .45.39 - 3 Z |

TABLE Z-A

RANK ORDERS OF AREA A AND AREA B SCORE MEANS
FOR CLASSES IN TWO ORGANIZATIONAL PLANS

| Area A | | | Area B | |
|---|---|---|---|---|
| Homogeneously Grouped Classes | Heterogeneously Grouped Classes | Rank Order | Homogeneously Grouped Classes | Heterogeneously Grouped Classes |
| | 29.18 - 2 Y | 1 | 25.26 - 2 A | |
| 29.13 - 1 C | | 2 | | 25.00 - 2 Z |
| | 28.87 - 2 Z | 3 | 24.88 - 1 B | |
| 28.76 - 1 B | | 4 | 24.84 - 1 C | |
| 28.29 - 2 A | | 5 | 24.31 - 2 C | |
| 28.03 - 1 A | | 6 | | 24.26 - 2 X |
| | 27.72 - 4 Y | 7 | | 24.09 - 1 Z |
| 27.63 - 2 C | | 8 | 24.04 - 3 C | |
| | 27.50 - 3 X | 9 | 23.97 - 3 A | 23.97 - 3 X |
| 27.43 - 3 B | | 10 | | |
| 27.28 - 4 A | | 11 | 23.96 - 3 B & 5 A | |
| | 27.25 - 1 Z | 12 | | |
| 27.16 - 3 A | | 13 | 23.93 - 4 A | |
| 27.06 - 2 B | 27.06 - 3 Y | 14 | | 23.91 - 2 Y |
| | | 15 | 23.72 - 4 C | |
| | 27.00 - 2 X | 16 | | 23.53 - 4 X |
| 26.96 - 3 C | | 17 | | 23.48 - 3 Y |
| 26.94 - 4 C | | 18 | | 23.47 - 4 Y |
| 26.14 - 5 A | | 19 | 23.36 - 1 A | |
| | 25.77 - 1 Y | 20 | | 23.13 - 1 Y |
| | 25.35 - 4 X | 21 | 23.00 - 2 B | |
| | 23.76 - 1 X | 22 | | 22.06 - 1 X |
| | 23.75 - 3 Z | 23 | | 21.64 - 3 Z |

TABLE 8

ANALYSIS OF VARIANCE FOR TOTAL SCORES--
BOYS AND GIRLS IN CLASSES

| Source of Variation | Sums of Squares | Degrees of Freedom | Variation | F |
|---|---|---|---|---|
| Between sexes in classes | 1,004.33 | 23 | 43.67 | 1.55 |
| Within sexes in classes | 18,677.90 | 667 | 28.00 | |
| Means: All boys 50.46 -- All girls 51.44 | | | | |

TABLE 9

ANALYSIS OF VARIANCE FOR AREA A SCORES--
BOYS AND GIRLS IN CLASSES

| Source of Variation | Sums of Squares | Degrees of Freedom | Variation | F |
|---|---|---|---|---|
| Between sexes in classes | 445.52 | 23 | 19.37 | 1.52 |
| Within sexes in classes | 8,485.51 | 667 | 12.72 | |
| Means: All boys 26.80 -- All girls 27.54 | | | | |

TABLE 10

ANALYSIS OF VARIANCE FOR AREA B SCORES--
BOYS AND GIRLS IN CLASSES

| Source of Variation | Sums of Squares | Degrees of Freedom | Variation | F |
|---|---|---|---|---|
| Between sexes in classes | 516.0 | 23 | 22.43 | 2.85** |
| Within sexes in classes | 5,255.0 | 667 | 7.87 | |
| Means: All boys 23.49 -- All girls 24.20 | | | | |

P.05 = 1.60 P.01 = 1.92 P.001 = 3.02

One heterogeneously grouped school seemed to have particulary influenced the results obtained. This school had the lowest and highest responses from heterogeneously grouped schools. The class means arranged in rank order showed that heterogeneously grouped School Z had the lowest and highest means of all the heterogeneously grouped schools for total scores and scores dealing with the children's school success and achievement (Area B).

The responses of boys and girls were quite similar with the exception of the responses given toward school success and achievement (Area B). The girls seemed to show better adjustment in this area (See Tables 8, 9, and 10). Analysis of variance showed a statistically significant difference in responses for Area B.

Summary

Homogeneously grouped children indicated more favorable adjustment to other children and schoolwork than heterogeneously grouped children; however, there appeared to be as much, if not more, difference from class to class in each organizational plan than between the two large organizational plans.

Since "low" or "middle" ability classes in homogeneously grouped schools scored lower than their more highly sectional peers, ability grouping was not shown to be beneficial for all children. If adjustment to other children and schoolwork are important considerations in the educational process, one would have to examine variables other than the organizational plan of homogeneous grouping for the answer. It is significant that boys scored lower than girls on adjustment to schoolwork. Is schoolwork less relevant to boys at this age when compared to girls or do girls have more varied skills at coping with standard school work than boys? Or, do girls not report their views as accurately as boys?

The results were sufficiently varied to suggest that the entire grouping question should be studied in depth to provide more definitive directions rather than use all of the opinion that now governs. Since this study showed variability from class to class in each of the two plans, "artificial" grouping of pupils may not be achieving what either proponents or opponents are touting. Rather, careful examination of the data seemed to show that opinions of pupils are related to the group they are with, and that fact transcends the attempts of school personnel to meet individual differences through any type of massive grouping. The movement in recent years to "open" education, upgraded schools, continuous progress, personalization and individualization has still not consumed the advocates of highly structured grouping plans. Serious consideration needs to be given to adequate research.

Ability grouping has been used as an administrative devise for meeting individual needs since the 1920's. A careful review of the literature shows very few well designed and comprehensive studies during the 50 years that have passed. Yet, in 1968, NEA obtained the following results from a teacher opinion poll:

43 per cent prefer working with average groups
26 per cent prefer working with high ability groups
18 per cent indicated preference for mixed pupils
10 per cent did not express a preference
3 per cent preferred low ability groups

Furthermore, the majority of teachers were in favor of some form of grouping.

George Weber and Arthur Pearl (1966) reported that 38 per cent of all elementary pupils in the United States are in a tracking plan. At this time, one would only have to guess as to the actual extent of tracking plans and to ability grouping on an intraclass basis. The great bulk of

literature related to grouping is opinion and not based on the findings that are available. It is a striking fact that although grouping continues, the research efforts that deal with it in any dimension are on the wane Our study seems to suggest:

1) The differences that were found in attitudes from class to class irrespective of the grouping plan denote the need to assess the impact of the teacher and the group on the learner's attitudes.

2) The basic personality may be more potent than school practices of any kind. Longitudinal research is needed to assess the impact of the school experiences on the child's total development.

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